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UNITED STATES DISTRICT COURT  
DISTRICT OF CONNECTICUT

----- X CIVIL NO. H-79-704

UNITED STATES OF AMERICA, :

Plaintiff, :

-against- :

SOLVENTS RECOVERY SERVICE OF :  
NEW ENGLAND, :

Defendant. :

----- X



SDMS DocID 550356

Monday  
October 5, 1981

DEPOSITION of the Witness, DANIEL C. CHRISTY,  
held pursuant to notice at the Hotel Thayer, West  
Point Military Academy, Highland Falls, New York,  
on Monday, October 5, 1981, before a Notary Public  
of the State of New York.

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## A P P E A R A N C E S :

ENVIRONMENTAL PROTECTION AGENCY  
REGION 1

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BY: JOEL BLUMSTEIN, ESQ.,  
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BY: MARION PERCELL, ESQ.,  
of Counsel

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D A N I E L C. C H R I S T Y, the witness herein,  
stating his address as Hulsontown Road, Stony Point,  
New York, 10980, having first been duly sworn by  
Joseph R. DeCelestino, a Notary Public of the State  
of New York, was examined and testified as follows:

EXAMINATION BY

MS. PERCELL:

Q Mr. Christy, my name is Marion Percell and I  
represent the Defendant in this case, Solvents Recovery  
Service of New England in connection with a lawsuit brought  
by the United States government and in which some other

parties have intervened also as Plaintiffs.

I am going to ask you a series of questions, and because the reporter is taking down everything that we say, I will have to ask you to answer out loud so that the Reporter can record your answers.

If you are not clear about any question that I ask you, please stop me and ask me to clarify it. I have no desire to confuse you in any way.

Do you have any questions about this proceeding before we start?

A No, I don't.

Q Can you tell me where you are currently employed, please?

A Yes. I work for the Spring Valley Water Company in West Nyack, New York.

Q How long have you worked for them?

A Oh, about five months now.

Q What is your position with them?

A Assistant director of operations.

Q Where were you employed previously?

A Town of Southington, Connecticut.

Q Do you recall the date that you left the Town of Southington?

A It was, I believe, May 1st or thereabouts.

1  
2 Q What was your position with Southington?

3 A I was the Superintendent of the Water Depart-  
4 ment.

5 Q When did you begin that job?

6 A July 1977.

7 Q Do you remember what part of July?

8 A I believe it was the middle. I don't  
9 remember.

10 Q How many years were you Superintendent of the  
11 Waterworks?

12 A Just about three years, a little less than  
13 three.

14 Q So it was July '78, wasn't it, rather than  
15 July '77 that you began?

16 A Yes, I think so.

17 Q Where were you employed before you were  
18 Superintendent in Southington?

19 A I was employed by the Town of Montclair, New  
20 Jersey.

21 Q In what capacity?

22 A I was the Assistant Superintendent.

23 Q How long were you there?

24 A Approximately five years, I believe.

25 Q Were you Assistant Superintendent during that

entire time?

A No. I initially started as an engineering aide.

Q Were you employed before that?

A Yes, I was. I was a teacher, secondary level, for a period of about four years.

Q What subject did you teach?

A I taught a little bit of math, physics and also English.

Q Did you have any prior employment?

A Basically part time jobs, summer work.

Q What is your educational background?

A I have a Bachelor of Arts degree from Rutgers, major in philosophy, and I have a Bachelor of Science from Newark College of Engineering which is also known as New Jersey Institute of Technology, and I have completed about 15 credits towards a Masters degree.

Q Did you have any specialization in your Bachelor of Science and Newark College of Engineering?

A Well, basically I would say that the course work was geared more toward structural engineering.

Q How about the 15 credits you have towards the Masters?

A They were basically environmental type

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1  
2 courses.

3 Q What kind of courses constitute environmental  
4 courses?

5 A Well, these were more or less fairly basic  
6 courses. One of them was environmental microbiology. One  
7 was environmental chemistry. There was an open channel flow  
8 course, a lab course, performing various tests.

9 Q Did you have those postgraduate courses  
10 before, during or after your period of time in Southington?

11 A Before.

12 Q Do you have any special qualifications to be  
13 Superintendent of Waterworks?

14 A Well, basically my experience in Montclair  
15 was the basis for my being hired in Southington, as well as  
16 my educational background. I suppose that was the reason  
17 they hired me.

18 Q I would like you to tell me something about  
19 the situation of the Southington Waterworks at the time that  
20 you began there in terms of water supplies available, wells  
21 and so on.

22 A When I got to Southington, the water supply  
23 sources that were being used at the time were four wells,  
24 Wells 1, 2, 3 and 5, and a reservoir supply. The safe  
25 Drinking Water Act had by that time become law and there was

1 an effort to look into some sources of water to replace the  
2 reservoir supplies since there was a problem of meeting water  
3 quality standards of the Safe Drinking Water Act at all times.  
4

5 Q This problem was with your reservoir source,  
6 not your wells?

7 A Yes, that's right. There was a problem with  
8 tribidity for the most part. Well No. 4 was out of service  
9 when I started in Southington and Well No. 6 was just being  
10 completed. The construction of Well 6 was just being  
11 completed.

12 Q Had the well already been drilled or was it  
13 the pump house that was being completed at that time?

14 A For Well No. 6, the well had already been  
15 drilled and the pump house was already being completed.

16 Q So it had not been in production at the time  
17 you started?

18 A As I recall, there had been some testing of  
19 the water, but it was not fully complete. We had a few  
20 mechanical problems, as I recall, with the motor and some of  
21 the equipment inside the well station and that's what was  
22 being completed at the time I started, but I believe, as I  
23 say, unfortunately with the time involved here, I was not  
24 able to review any of the files or anything, but as I recall  
25 the well was being tested at that time of being pumped.

Q Do you recall what the results of any tests done as to Well 6 prior to your arrival were?

A I believe that some testing had been done on the original -- after the well was originally drilled and at that point the well was considered good for, if I recall, 1400 gallons per minute pumping rate. However, there was a problem with some heavy metals in concentrations that were considered somewhat high, so an effort was made to reduce the pumping rate and see if in fact this did result in a reduction of those heavy metals, which it did. I think at that time also there was some tests taken for organics.

Q Who took those tests?

A At that time, we had a consulting engineer, Walter Amory, and those tests I think were done in conjunction with the review of the water quality and analyses by the State Health Department and I believe the testing was done by Newlands.

Q Do you know whether the tests for heavy metals were initiated by Walter Amory, by the State Health Department or by some other party?

A I don't.

Q Can you define or give me some idea of the meaning of the phrase heavy metals?

A There are a series of chemicals that are



commonly called heavy metals and are so listed, I believe, in the Safe Drinking Water Act. They consist of metals like mercury, lead, silver, cadmium.

Q Do you recall which of those were found in Well No. 6?

A No, I don't.

Q Okay. Turning to the point when you began working there, who was it that trained you or oriented you or told you about the problems existing in the Waterworks?

A Well, basically I believe John Bean, the previous Superintendent remained working for about two weeks while I was starting. The other people that I relied on were some of the employees and Amory Engineers and some of the other officials in the Town and our attorneys.

Q Can you tell me the names of some of the employees that you relied upon?

A Well, Ed Fox was the Foreman in the Department and he was familiar with some of the distribution matters, maintenance, repairs and that sort of thing that had been done in the system. He had a very good feel for the hydraulics of the system, and I guess he was the main -- my main resource amongst the employees as far as the water system is concerned.

As far as other operations of the Department,

the commercial and that sort of thing, the Office Manager there was my resource of turning to, Jeanette Rush.

Q What about local and state officials?

A Yes. As I said, the Town -- other town officials, I did speak to them, and --

Q Can you tell me names of individuals?

A Well, the Town Engineer was Tony Tranquillo (phonetic), Town Manager was John Weichel, the Fire Chief, Town Planner, Dan Ianicelli.

Q Did you during the early period of time that you were there ever have occasion to speak to Samuel Bowers?

A Yes, I did. Sam Bowers did stop in occasionally to the office and we did have some conversations with him.

Q What was the substance of those conversations?

A Well, I think they were fairly general in nature. I don't really recall the specifics of any of them. I think they were about general hydraulics of the system and how the system drove or grew and that basic sort of thing.

Q Did he discuss the history of the system with you?

A Yes. We discussed that at some points, I think. I was very much interested in the system and he had a well knowledge about the system, history of the system.

Q Did he discuss such matters as the decisions

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1 to locate new wells in particular areas?

2 A I don't think we really got involved in that  
3 depth in any of the conversations, at least in the early --  
4 my early time with Southington.  
5

6 Q Did you at some later point discuss those  
7 things with him?

8 A I think we probably did as we began to find  
9 some problems with certain of the wells. We did discuss  
10 what was involved in locating wells at particular sites.

11 Q Can you tell me what he told you about that?

12 A I don't know if I fully recall any specific  
13 conversation of that nature. I know we had discussed the  
14 method the Department used in siting wells in the past and  
15 they were very -- generally very thorough, involving the use  
16 of experts in the field and reference with the State Health  
17 Department.

18 Q Did he discuss specifically the decisions to  
19 locate Wells 4, 5, and 6 and what considerations went into  
20 those decisions?

21 A Yes, I'm sure we spoke of those wells because  
22 of the problems with the water quality in them, and as I  
23 say, basically the procedure of locating the wells was  
24 basically to hire an expert in the field to conduct some  
25 testing and to then use that information to determine

whether or not a municipal type supply could be located in that area.

I believe also that the testing had always basically consisted of three parts, one being to drill small diameter wells at a location. These are generally about two inch diameter wells, to note the geology that these wells were passing through while they were being drilled, to develop those wells and to pump test them at a later date and note the changes in water levels inside these wells. That information was then reviewed by the consultant and the consultant would make a recommendation as to where future drilling -- whether future drilling of a larger diameter well would be advisable at that location.

Q Did that part of the process -- I gather you are talking about the first part of the three step process now?

A Right, the two and twelve.

Q Did that step involve any testing for water quality as opposed to amount?

A Yes, certainly. While I was involved in Southington, that was a requirement, that water quality tests be taken at that time. I am fairly certain that that had always been a procedure.

Q What parameters were tested for?

1 A Basically the parameters that were tested for  
2 were the parameters for which limits were set by the State  
3 Health Department.  
4

5 Q Can you go on in your description of the  
6 three parts to this test procedure?

7 A Well, the second part, as I started to mention,  
8 was the drilling of a larger diameter well, usually in the  
9 range of about eight inches in diameter, and again pump  
10 testing that and observing water levels in the various wells,  
11 and of course that eight inch -- the location of the eight  
12 diameter well was based upon the information that was  
13 derived from the small diameter well testing, and then if  
14 that eight inch did in fact show to be a productive site,  
15 then plans would be prepared perhaps immediately, perhaps  
16 delayed for some time until the need for that supply was  
17 apparent, and then a production well would be drilled at  
18 that site.

19 Q Do you recall what limits were set as to  
20 what parameters were set by the State Health Department?

21 A For what testing?

22 Q Well, what I am trying to get at, you stated  
23 earlier that the water quality parameters tested for were  
24 those which limits were set by the State Health Department.  
25 I am trying to get a closer view of what those parameters

1 were, including if they changed over time, if you remember.

2 A Yes, they do change. They have changed over  
3 time. They did change over time.

4 With respect to the State of Connecticut's  
5 water quality standards, I can't actually speak to the  
6 question of what parameters were involved in every well  
7 investigation. I don't know that, but basically the type of  
8 parameters are bacteriological and chemical. The bacterio-  
9 logical are not subject to much change, but the chemical  
10 parameters have been subject to change over time.

11 Q What does the bacteriological test consist of?

12 A Basically a sample is taken of the water and  
13 if there is chlorine -- well, in the case of a well there  
14 wouldn't be any chlorine in the water.

15 A raw water sample would be taken and it  
16 would be prepared and the test would essentially look for  
17 chloroform bacteria which are indicator bacteria. Chloroform  
18 bacteria themselves are not necessarily harmful, but if  
19 chloroform is present there is a presumption that harmful  
20 bacteria are present because one of the sources of chloroform  
21 bacteria is the digestive system of warm blooded animals,  
22 so if chloroform are found, it is assumed that bacteria are  
23 present, which in fact may be pathogenic.

24 Q You stated a little earlier that the chemical  
25

1 tests have changed over time. Can you tell me what you can  
2 remember -- I don't obviously expect you to remember every-  
3 thing that was tested for -- tell me what you remember they  
4 used to test for and what they tested for most recently and  
5 how it has changed.  
6

7 A Well, I think one of the things to remember  
8 in the chemical test is that as instrumentation becomes  
9 more available to measure certain things, you begin to be  
10 able to find things that you perhaps could not find before,  
11 and secondly, as research into disease proceeds, sometimes  
12 it's understood certain types of chemicals may cause human  
13 diseases or illnesses, and that relationship was never  
14 understood before, so I think these were the two main causes  
15 for the change in the chemical standards.

16 Q Can you tell me what those changes were,  
17 though?

18 A Well, for example, the Safe Drinking Water  
19 Act changed some parameters called turbidity and color from  
20 what they had previously been. At least in the State of  
21 Connecticut, there you have got to realize, too, before the  
22 Safe Drinking Water Act which is a Federal piece of legisla-  
23 tion, each state essentially made up their own drinking  
24 water standards and these may have varied between states,  
25 also.

1 Connecticut's standards I think were pretty  
2 much in tune to what the Federal levels were. I don't  
3 believe there were very many changes in the Connecticut  
4 standards, except for these parameters of color and odor,  
5 color and turbidity.  
6

7 Again, the Safe Drinking Water Act went into  
8 effect in 1977 which was, you know, prior to when I was  
9 there, so I'm not familiar with all of Connecticut's  
10 standards before 19 -- before I started there. Those are  
11 the only two I can think of off the top of my head where  
12 there have been changes. There may have been more.

13 Q Again, you stated earlier in the course of  
14 testing for a new well, the water quality tests that would  
15 be performed would be those for which limits were set by  
16 the State Health Department.

17 Can you recall an instance of Southington  
18 Waterworks or its engineers testing for a parameter as to  
19 which the State Health Department had not set a limit?

20 A Yes. In the developing of Well 6, the testing  
21 was done for organics, and I think on both 6 and Well No. 4,  
22 this was a test that was done before I got there, so I'm not  
23 all that sure about all the decisions that were made as to  
24 why those particular tests were going to be run, but that is  
25 the case where they were performed when there were in fact no



1  
2 state standards.

3 Q Do you know who performed the tests for  
4 organics?

5 A Who actually did the chemical analysis?

6 Q That is it, yes.

7 A I think at first the State Health Department  
8 did the analysis.

9 Q Do you know whether it was the State Health  
10 Department that made the decision to test for organics?

11 A No, I don't.

12 Q I am going to show you some documents and  
13 basically ask you if you have seen them before or if you  
14 know some of the substance of those documents. In order to  
15 keep a record of what I am looking at, what I am showing  
16 you, I am going to ask the Reporter to mark them for  
17 identification before I show them to you.

18 (Whereupon, the documents referred to above  
19 were marked as Defendant's Exhibits A - R for  
20 identification.)

21 Q The first three documents I want to show you  
22 are documents that predate by a number of years your coming  
23 to Southington. I would like to know whether you have ever  
24 seen them and whether you recall some of the substance of  
25 these documents or have you ever had any discussions about

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1  
2 them.

3 The first is a letter dated September 28th,  
4 1965 from Samuel Bowers and addressed to the State Water  
5 Resources Commission.

6 (Defendant's Exhibit A submitted to the  
7 witness.)

8 A I don't recall seeing this.

9 Q Let me ask you, then, there is a reference  
10 within this document to a pool at the Solvents Recovery  
11 Service property. I've heard that pool also referred to as  
12 a lagoon. Do you remember when, if ever, you first became  
13 aware that Solvents had at one time had a lagoon on its  
14 property?

15 A Well, I would -- I can't say that I remember  
16 precisely, but I would think that I would have heard about  
17 it early -- very early when I came to Southington. I'm not  
18 saying the first week or the first month, perhaps, but I'm  
19 sure it was --

20 Q Do you have any recollection of who it would  
21 have been that would have mentioned it to you?

22 A It could have been a number of people from  
23 whom I heard it the first time. I can't really say for sure  
24 who it was.

25 Q Have you ever heard of a company Southington

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Excavators?

A The name is not familiar to me.

Q The second document is a memo from a Lawrence Shulman to William S. Wise dated October 1, 1965.

(Defendant's Exhibit B submitted to the witness.)

A I don't recall this letter.

Q Did you ever have any discussion that you can recall with Samuel Bowers concerning the lagoon on Solvents Recovery's property?

A Yes, I'm sure I did. I can only conjecture as to what was discussed at the time. I don't really have a vivid recollection of any of the discussion.

Q You don't recall whether you first heard about the lagoon from him?

A I don't know.

Q And you don't recall anything in particular that he told you about it or discussed with you about it?

A I would say I would have a very difficult time remembering who told me what on any of that stuff. Number one, I was relatively new, not only in position, but in that area of the country. There were a lot of people that I met in a very short period of time from many different agencies or companies and I just would find it very difficult

1 to attribute any particular thing to a particular person.

2 Q Do you have any recollection of the theory  
3 that is stated in here, being attributed to Mr. Bowers, that  
4 the industrial waste had sealed the bottom of the lagoon  
5 and there was no danger of pollution to the Town from it?  
6 Had you ever heard that theory before?

7 A Well, I think there was a theory that the  
8 material that -- well, there is a branch of geology, I  
9 suppose, that gets involved with how far a particular  
10 material will move in the ground. Some materials will move  
11 freely in the ground through, you know, the soil, through  
12 the porous spaces between the soil particles. Others won't.  
13 They'll become attenuated. Very -- I think to this day  
14 there still needs to be a lot of work done in that. Perhaps  
15 this is what Mr. Bowers was discussing here, the idea that  
16 that material would be attenuated in the soil.

17 Q The next document is a memo from Edward  
18 Dacca to Robert Moore, both of the Water Resources Commission,  
19 dated August 3, 1970.

20 (Defendant's Exhibit C submitted to the  
21 witness.)

22 A I am also unfamiliar with this one.

23 Q The document that has been marked Exhibit D  
24 for identification is on the letter head of Walter Amory  
25 consultant engineers addressed to you and dated August 8, 1978.

(Defendant's Exhibit D submitted to the witness.)

A Yes, I'm familiar with that.

Q Do you recall the substance of this letter? Do you remember it to be true, for example, that V. H. O's were first detected in these wells in samples taken on September 16th, 1976?

A Well, again, I can't recall that from my own personal memory because I was not there at that time, but I believe that's when the testing started for that area, so I would think that would be a ballpark figure, yes.

Q May I direct your attention to the last paragraph on the second page. Do you recall the conclusion that the major source of contamination to Well No. 4 was a source south of that well?

A Yes, I do.

Q Were you able to form a conclusion at that time as to the accuracy of that?

A Well, I think we were guided at that point very much by our engineers, our consulting engineers' opinions, and based upon the samples that were taken and the wells that were sampled, it did appear as if that was a justifiable conclusion at the time. I can't say there was ever a real clear sense to me that the data all pointed in

1  
2 one direction. As we were taking the samples, we did have  
3 some inconsistencies that were unexplainable at the time,  
4 but it did -- because as I recall, this area to the south of  
5 Well No. 4 was considered because we found some high  
6 concentrations in the samples there and that's basically,  
7 I think why we felt there must be something down there.

8 Q On the last page there is a paragraph which  
9 states, "that it is the author's understanding, the  
10 Department did not use Well No. 4 and is using Well No. 6  
11 only to meet peak demand." As I understand this, this would  
12 have been less than a few weeks after you began working with  
13 Southington.

14 Is that the case? Is that paragraph an  
15 accurate representation of what the Department was doing at  
16 that point?

17 A Yes.

18 Q Who made the decision not to use Well No. 4?

19 A Well, again, that decision was made before I  
20 got there, so I don't know for sure, but I would think that  
21 was a decision made by the Department based upon the opinion  
22 and the evidence of our consulting engineer and the State  
23 Health Department.

24 Q When you say "the department," whom do you  
25 mean?

1  
2 A The Superintendent and the Board of Water  
3 Commissioners. That would be my conjecture. As I say, I  
4 was not there at the time, so I can't say from actual  
5 experience.

6 Q What about the decision to use Well No. 6  
7 only as necessary to meet peak demand? Was that a decision  
8 that had already been made before you began?

9 A Yes, it had. I believe it had, and that was  
10 simply because there was some question about the quality of  
11 the water from there, so we figured, see, the less we use it,  
12 the better.

13 Q Do you remember on what date it was completed  
14 and ready to be used?

15 A No, I don't.

16 Q Do you remember whether there was such a  
17 peak demand that the well was actually used during August of  
18 1978?

19 A Again, there is nothing that I have before  
20 me that would lead me to say conclusively yes, that the well  
21 was used during that period. As I recall, we did have some  
22 mechanical problems. I don't know in fact if it was being  
23 used or not. I would imagine that, you know, our demand in  
24 August would be expectedly high and that the use of the well  
25 might in fact have been needed, but I can't say for sure that

1  
2 it actually was.

3 Q Do you remember --

4 A Of course, we've got pumping records that could  
5 show whether it was or not.

6 Q Do you remember feeling that the decision to  
7 use Well No. 6 only as necessary to meet demands was not the  
8 best decision, or do you remember believing that that decision  
9 should be changed once you began? Did you do anything in  
10 connection with that decision?

11 A No. I believe that based upon the information  
12 that we had at the time, that that was the proper decision to  
13 make.

14 Q Did you review the reasons the decision was  
15 made so that you could come to an independent conclusion as  
16 to its appropriateness?

17 A At the time of this letter, I don't know. I  
18 hadn't really been around that long at the time, August 8th.  
19 I would have looked at the information as soon as I had a  
20 chance, I'm sure. It would be in this period, you know,  
21 perhaps not exactly at this time.

22 Q The last sentence of this letter is "We concur  
23 with this approach," meaning not using Well 4 and using Well  
24 6 only as necessary to meet peak demand, "and it is our  
25 understanding that the State Health Department also concurs."



1  
2 Would you have been likely to follow the advice of Walter  
3 Amory Consultant Engineers and the State Health Department?

4 A Very much so. You have to realize at this  
5 point in time I had just started there. I had never worked  
6 there before and everything was -- I had to get to learn  
7 everything in that system, so I'm sure I would have relied  
8 on our experts who had been around for some time on many  
9 matters.

10 Q Do you recall any time that the past decisions  
11 that had been made prior to your starting there, that you  
12 felt if you had been there you would have made a different  
13 decision?

14 A I don't think I ever felt that way. Many of  
15 the decisions that were being made were being made at the  
16 time when there wasn't really adequate information to make  
17 the good decisions, and so we had to make what, you know --  
18 I don't think we could secondjudge that. Things were  
19 changing consistently at that time. I think we just had to  
20 go with what the recommendations of the Health Department  
21 and our consultants were.

22 Q The next document which has been marked  
23 Exhibit E for identification is also a letter on the letter-  
24 head of Walter Amorty Consultant Engineers and addressed to  
25 you. It is dated just two days later, August 10th, 1978.

(Defendant's Exhibit E submitted to the witness.)

A. Yes, I'm familiar with that letter.

Q. Do you recall Walter Amory's conclusion that the source of contamination of Well No. 4, although it is well known, presents a threat to Well No. 6?

A. Yes.

Q. Did you concur in that conclusion?

A. Yes.

Q. Can you explain to me the reason as you understand it for his recommendation that the Department pump Well No. 4 to waste?

A. Pump Well No. 4 to waste or pump No. 4 to waste at the same time as using Well No. 6?

Q. Well, I am referring to his suggestion in the third paragraph of this letter and I don't want to characterize it, other than as he does or as you can describe it.

A. Yes.

Q. Can you describe for me what the idea was -- what was the purpose for the decision? What was it supposed to accomplish as you understood it?

A. Well, I think at the time as we noted before, that the one conclusion that there was a source south of Well No. 4, and of course Well No. 6 is north of Well No. 4,

1 so the idea of pumping that, if in fact there was a source  
2 south of No. 4, pumping 4 to waste might be removing some  
3 of that material from the ground. This was suggested as an  
4 interim method in order to see if in fact the concentration  
5 of the organics did in fact increase or decrease with that  
6 pumping.  
7

8 Q Concentration of organics in which well?

9 A I'm sorry.

10 Q In which well?

11 A In Well No. 4.

12 Q Was the expectation that it would have some  
13 effect on Well No. 6?

14 A Well, if the source of contamination were  
15 south of Well No. 4, then pumping No. 4 would not be  
16 expected to have any effect on Well No. 6.

17 The second suggestion in here was that once  
18 we got the permit to discharge and we put Well 5, that we  
19 use -- I'm sorry -- once Well 5 was on, Well 4 should be on  
20 simultaneously. The idea there was anything coming from the  
21 southerly direction would be intercepted by Well No. 4 and  
22 would not get into No. 6. That's the meaning of the curtain.  
23 Well No. 6 would act as a curtain block to that contaminated  
24 material from getting north of it and into No. 6.

25 Q Is it true that at this period the tests

1 showed a higher level of contamination in Well No. 4 than in  
2 Well No. 6?

3 A Yes.

4 Q Can you explain a little bit about why the  
5 source of contamination of Well No. 4 was seen as a threat  
6 to Well No. 6?

7 A Well, based on the geological information  
8 that we had, there was no reason to think that it wouldn't  
9 be the material that was in the ground, and it may have been  
10 drawn toward the well during pumping. During pumping you'd  
11 have a flow of ground water toward the pumping well, so that  
12 any water passing through any contaminated area might pick  
13 up some of that contaminated material and be drawn from the  
14 well. We were not quite sure where it was, so it was the  
15 suspicion, I guess, that was a conservative method.

16 Q I understood you to say earlier that some  
17 kinds of testing became possible with greater technological  
18 advances over the years. Is that correct so far?

19 A (Indicating affirmative response.)

20 Q What you were just discussing, though, the  
21 question of whether pumping is likely to pull contaminants  
22 from the area into a well, is that something at least at this  
23 point that was common knowledge?

24 A Again, I think for some chemicals the feeling  
25

1 was -- well, there is -- I guess all chemicals can move to  
2 some extent from Point A to Point B. If Point A is close  
3 by Point B, then it's more likely it's going to get there.

4  
5 Other chemicals may not travel that far  
6 because of their own -- I don't know -- ability or charac-  
7 teristic to bind up with soil, so I guess in answer to your  
8 question, yes, it was known that materials can move through  
9 the soil, but specifically how far individual chemicals  
10 could move in the soil, I don't think there is a great deal  
11 of knowledge about that.

12 Q The document that has been marked Exhibit F  
13 for identification is a memo from Paul Marin of the D. E. P.  
14 to the file and it seems to represent notes of a meeting on  
15 August 10th, 1978, at which you were present. Have you ever  
16 seen this document, and if not, do you remember the meeting?

17 (Defendant's Exhibit F for identification  
18 submitted to the witness.)

19 A Yes, I remember that meeting. I don't recall  
20 seeing this memo.

21 Q Does it accurately set forth your recollection  
22 of the meeting?

23 A I believe so.

24 Q Is there anything in it that you either  
25 re-  
don't/call or you recall as inaccurate?

1 A Well, again, it's something that I don't  
2 really recall clearly, but --

3 Q Do you remember discussions of Wells 4 and 6  
4 at this meeting?

5 A Well, again, I remember meeting with them at  
6 about that time and I'm sure Nos. 4 and 6 was the main reason  
7 for meeting.

8 Q Can you tell me anything else about the  
9 purpose or the reason for the meeting or what led up to it  
10 or anything like that?

11 A I'm sorry. I can't.

12 Q Why are you sure that Wells 4 and 6 were the  
13 main reason for the meeting?

14 A Well, I think with those two individuals,  
15 Paul Marin being involved there, you know, that was  
16 basically my contact with Paul Marin at that time, was on  
17 this particular situation.

18 Q Do you recall discussion of the possibilities  
19 that if Well 6 was used while No. 4 sat idle that contamina-  
20 tion south of the Quinnipiac and west of No. 4 might travel  
21 into Well No. 6?

22 A Yes. As I said before, I think that was the  
23 general theory at the time. There was some popular material  
24 over there. We wanted to do all we could to prevent its  
25

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1 movement to Well No. 6.

2 Q So at this point the intention was to use  
3 Well No. 6?

4 A Again, on a last call basis, just to meet  
5 peaks.

6 Q Do you recall discussion of Walter Amory's  
7 advice not to pursue civil action against Solvents Recovery?

8 A I don't specifically remember that.

9 Q Have you ever heard of Industrial Chrome  
10 Plating on Curtis Street?

11 A Yes.

12 Q Was there a discussion of Industrial Chrome  
13 Plating as a possible source of contamination?

14 A Again, I do not specifically remember in  
15 detail what occurred at that meeting, but as I recall that  
16 possibility was known and considered at that time, so I  
17 would expect it to be brought up at that meeting.

18 Q The next document which has been marked  
19 Exhibit G for identification is also a memo from Paul Marin.  
20 This one is addressed to Robert B. Taylor, also of the  
21 D.E.P. dated October 19th, 1978.

22 (Defendant's Exhibit G for identification  
23 submitted to the witness.)

24 Q Have you ever seen this memo before?  
25

1  
2 A I believe I have, yes.

3 Q Do you remember in what context you saw this  
4 memo?

5 A No, I don't.

6 Q I direct your attention to the second  
7 paragraph on Page 2. To some extent, I think it is a rehash  
8 of things we already stated, but again there is an indication  
9 in this memo that the contamination of Well No. 4 came from  
10 sources south of the Quinnipiac. Do you recall that  
11 conclusion and did you agree with it?

12 A Well, yes, I remember that this was a  
13 possibility that was being discussed and it looked to be a  
14 pretty good probability at that time because of the results  
15 of analyses that had been performed in the various test wells.  
16 As you say, we're rehashing. There did appear there was a  
17 site or sites in that vicinity based upon the information we  
18 had at hand at that time.

19 Q Do you remember any discussion of a company  
20 called Supreme Lake Company?

21 A Yes.

22 Q What was the discussion?

23 A There was a discussion as to what sort of  
24 process, manufacturing process they used, and as I recall  
25 that was a business that had moved, relocated to another



1 section of town and left that particular site. They were  
2 no longer there, so there was a discussion that because of  
3 the operations that were going on there, they may be  
4 contributing to the problem in No. 4.  
5

6 Q What were the processes -- what kind of a  
7 company was it?

8 A I don't know that for certain. I'm not  
9 familiar with that company personally.

10 Q Do you remember what the discussion of it  
11 was?

12 A I think it was a metal plating type of  
13 operation. Again, I'm not sure.

14 Q It appears from this memo to have been  
15 different from the chrome plating firm referred to. Do you  
16 remember any discussion of the chrome plating firm?

17 A Yes. Again, I think the context was that  
18 there was evidence in some of the wells of a source or  
19 sources south and west of Well No. 4 that couldn't -- based  
20 upon the other data from the test wells, couldn't be assigned  
21 to Solvents Recovery, so the suggestion was that there must  
22 be some other place, what else was there, and then these  
23 names came up in that context as being industries that were  
24 there at one time whose processes were such that they might  
25 have contributed to the problem.

Q I direct your attention to the sentence that begins "the greatest threat to Well No. 6 at this time."

Did you agree with that opinion?

A Well, as I recall, the situation was that in proximity to Well No. 6, the test wells that showed the highest levels of concentrations of organics were those to the south and west and not the ones to the north at that time, so I would say at that point in time I did agree with that conclusion.

Q Do you know of any earlier testing to suggest that the wells north were more contaminated, testing earlier than this period of time?

A That the test wells to the north of Well No. 6 were more contaminated in the vicinity of the ones of Well No. 4?

Q Yes.

A I don't recall anything to that. Maybe I could add something to that.

I think at the time that a lot of the testing was being done with the instrumentation that was available to test for these chemicals, it had not been a couple of years prior to that. There was still some concern about the consistency of samples of analyses, and I don't know if the concentration of these chemicals in certain wells varied over

1 the course of time so much or just if there was not a  
2 uniformity in the methods used to test and sample that caused  
3 fluctuations that were really quite high, so again, the areas  
4 to the north, I think there was a need to put additional  
5 wells in there as mentioned, I think in one of the previous  
6 letters that we had there from Amory suggesting that a well  
7 be installed further north because a lot of the wells up in  
8 the north area I believe had been -- we weren't able to get  
9 samples out of them. They were what they call pulled tight.  
10 When you start pumping, you draw in material that prevents  
11 you from getting water out of the well, so whereas, I don't  
12 recall any samples that showed up really high to the north.  
13 I don't know. There could have been a number of reasons for  
14 that.

15  
16 Q So is it true that in late 1978 there had been  
17 for some period of time discussions of -- I don't know if  
18 experiments is a mischaracterization -- trying pumping Well  
19 No. 4 to waste in order to protect or provide a curtain for  
20 Well No. 6?

21 A Yes.

22 Q Did you do anything in that connection?

23 A Yes. We, as was pointed out in one of the  
24 previous exhibits, Amory Engineers prepared a permit to pump  
25 No. 4 to waste and to see if they could protect Well No. 6

1  
2 that way.

3 Q I would like to ask you to identify this  
4 National Pollutant Discharge Elimination System application  
5 for permit to discharge and ask you if it bears your  
6 signature on the second page? The document has been  
7 identified as Exhibit H for identification.

8 (Defendant's Exhibit H for identification  
9 submitted to the witness.)

10 A Yea. This appears to be the application that  
11 we made to the D.E.p. to discharge Well No. 4 into the  
12 Quinnipiac River.

13 Q I ask you if the first two paragraphs of  
14 enclosure accurately describe what it purports to describe?

15 A Yes, I believe so.

16 Q Did you believe that it would be safe or  
17 advisable to discharge water from Well No. 4 to the  
18 Quinnipiac?

19 A Well, I think the intent of doing that was  
20 to protect the water from Well No. 6, to flow -- the flow of  
21 contaminants to Well No. 6, as was pointed out in that  
22 statement, that the water met all drinking water regulations  
23 except for concentrations of organics and in the concentra-  
24 tions that we were getting there and discharge to the river  
25 and the volatilization of those organics in the stream by

1  
2 turbulence and the sunlight, it did not appear that this  
3 would be creating a problem for the water quality of the  
4 river.

5 Q In deciding to pump Well No. 4, why was the  
6 decision made or intention, it says in the first paragraph,  
7 that Well No. 4 only be pumped while water was being pumped  
8 from Well No. 6?

9 A Well, if I recall on that one, because of the  
10 locations of the what were considered to be the possible  
11 sources and their location with respect to the river, it was  
12 felt that the natural flow would be toward the river in that  
13 area and that really they wouldn't be heading toward Well No.  
14 6, but when Well 6 were being pumped, that pull might have a  
15 tendency to pull those things to the north and that's why  
16 Well No. 4 was planned to be pumped at that time, so if there  
17 was movement of those contaminants from those two sites or  
18 more sites, that it would be intercepted in Well No. 4 and  
19 discharged into the river and not into the drinking water  
20 well.

21 Q Can you explain to me why it is stated in the  
22 permit application that "the effect of discharged volatile  
23 halogenated organics on downstream users is so slight as to  
24 be insignificant"?

25 A Well, I don't know that there are any downstream

users of the river for water supply until Cheshire, at which time it was felt that these volatile organics would not be present there.

Q Were any tests performed to see if that was so?

A I believe -- I'm not certain on this, but I'm not sure it was the State D.E.P. or the State Health Department that had collected samples downstream of the well.

Q Am I correct that you testified earlier that this was prepared by Walter Amory? I meant Walter Amory, the firm.

A That's right.

Q Do you happen to know what individual did prepare it?

A I would think that it would probably be Robert Taylor, who was our main engineer at the time from that company and with Walter Amory, as well as perhaps some of the other engineers, but I would expect those to be involved with it very much.

Q Did you review it to be sure that you were satisfied with the contents before you signed it?

A Yes.

Q The next document I would like you to look at is a memo from Robert Taylor of the D.E.P. to Melvin

1  
2 Schneidermeyer dated January 11th, 1973 and marked Exhibit I  
3 for identification. Have you seen this memo before?

4 (Defendant's Exhibit I for identification  
5 submitted to the witness.)

6 A I don't recall that one.

7 Q Since we have really gone over a lot of the  
8 substance of this before, let me just ask you if the last  
9 paragraph on the first page continuing over to the second  
10 page is an accurate statement of the events at the time?

11 A I think that's accurate for what we knew at  
12 the time.

13 Q I am trying to understand if by that you are  
14 indicating any kind of reservation about whether this  
15 described the situation at the time. I am not asking you if  
16 you learned something later that made it not true.

17 A Yes.

18 Q The next document is a letter on Amory  
19 Engineers letterhead dated February 27th, 1979. It is  
20 addressed to Robert B. Taylor of the Connecticut D.E.P. and  
21 indicates a copy to you.

22 (Defendant's Exhibit J for identification  
23 submitted to the witness.)

24 A Yea, I believe I'm familiar with that.

25 Q Is this a correct statement of your position

1 at the time, "the Town is loath to use Well No. 6 without  
2 the production that would be offered by concurrent pumping  
3 of Well No. 4 to the river"?  
4

5 A Yea. We wanted to have that additional  
6 production for Well No. 6 as I stated before, as some sort  
7 of barrier toward any pollution that might be moving  
8 northerly.

9 Q What are the quality problems as to other  
10 sources of supply that made it necessary to utilize Well No.  
11 6?

12 A I think the reference obviously as to Well  
13 No. 4 as I mentioned before, I think it was -- I think it is  
14 probably intending to reference the turbidity problem at  
15 the reservoirs. I think those are basically it.

16 There was also a sodium problem at one of  
17 our other wells, although it was not really very high, but  
18 it was above the recommended limit.

19 Q Well, was Well No. 6 actually used after the  
20 date of this letter?

21 A I could be almost positive, but without  
22 seeing the pumping records --

23 Q Well, was Well No. 6 in use at any time while  
24 you were with Southington?

25 A (Indicating affirmative response.)



Q Was it in use for a period of weeks or months or years?

A Well, again, I think the station was built and pretty much operational at approximately the time I got there, and I believe it was closed the following November, if I recall, so there is a period in there where it was used. When it was used and how much it was used, I would have to refer to the pumping records to find out.

Q By "the following November," do you mean November of 1978 or November of 1979?

A I believe it was -- no. I'm sorry. It was July. It was not November. I think it was July.

Q Of what year?

A Of '80.

Q Is it true that during that whole period the well was being used only for peak demand or was there any time when it was in regular use?

A Well, it was always used as one of the last wells to go on. I think there was a period in there where we used it as the next to last well, because when we started to see high concentrations in another one of our wells, No. 5, I believe at that time we looked at the two wells and saw that the concentrations in No. 6 were lower and we were using that in preference to Well No. 5. Again, to verify that, we

would have to look at the pumping records.

Q Is it true that you believe that it would be preferable during those periods to use water from Well No. 6 and Well No. 5 if absolutely necessary in preference to alternatives such as purchasing water?

A Well, it was very difficult for us to purchase water. The Town of Southington was -- their water system was set up in such a way that we did not have interconnections that we could, you know, just say, all right, we've lost these wells, okay, go to another company and say let's turn the valve and we'll start buying water from you to replace those lines.

We did in fact start discussions with New Britain to get a well that they had in the Town of Southington, to prepare that so that it could pump into our distribution system.

Q What period of time was that?

A I think it was around the summer of 1980. It was in the summer of 1980.

Q Were plans ever made to drill a seventh well?

A At the time we were in the process of looking for a seventh well, and since that time all seven and eight have gone into service.

Q By "that time," what time period are you

1 referring to?

2  
3 A Well, at the present time. Since that time,  
4 right now we have Well 7, and I'm not sure if Well 8 is on  
5 line yet, but two new wells were constructed. But at this  
6 time we were in the initial phases of investigation for Well  
7 No. 7.

8 Q Again, by "at this time," are you referring to  
9 the date of this letter or some other period of time?

10 A I was referring to that period of time that  
11 we were talking to New Britain about additional water.

12 Q Was that the summer of 1980? Am I remembering  
13 correctly?

14 A (Indicating affirmative response.) I don't  
15 recall the exact dates of when we started the testing at that  
16 well field, but what we call the East Street Well Field. It  
17 may have been at the same time as this. I think it was, as  
18 this letter.

19 Q So at the time of this letter dated February  
20 27th, 1979, at the time when the Town was loath to use Well  
21 No. 6 without the production of pumping Well 4 to waste, was  
22 the Town already looking for alternative sources?

23 A Yes. The exact status of the completion, I  
24 can't say exactly, but we were looking for new supplies. The  
25 new supplies were intended to replace the reservoir supply

1 which we had a turbidity problem with.

2 Q Rather than to replace Wells 4,5, and 6?

3 A Well, at the time of this letter, the only  
4 well off was No. 4, so, you know, in a sense those wells  
5 hopefully would -- we didn't quite know how much water we  
6 could get out of that well field at the time. The reservoir  
7 supplied a safe yield of 1.2MGD, but we could get more water  
8 out at a given time as long as over the year we didn't take  
9 more than 1.2MGD out as an average, so we would have to  
10 replace that. How much the well field was going to give us,  
11 you know, we weren't sure at that point.

12 Q By "well field," do you mean Curtis Street or  
13 East Street?

14 A East Street.

15 Q So the source of supply that you were looking  
16 to replace at this point was the reservoir?

17 A Primarily, yes.

18 Q So that when this statement was made, "because  
19 of quality problems with the other sources of supply, it will  
20 be necessary to utilize Well No. 6 in the near future," it  
21 is your recollection that the other sources of supply being  
22 referred to are Well No. 4 which had been off, out of  
23 production for a long period of time already, and the  
24 reservoir; is that correct?

1  
2 A Right. As I recall, we had a January 1, 1980  
3 deadline and -- '81 deadline on the use of the reservoir.  
4 That deadline was imposed by the State Health Department  
5 with respect to the Safe Drinking Water Act, so that we  
6 needed to replace that supply. Since that time there has  
7 been an extension granted, so that now the deadline date is  
8 1984 and not 1981, but at the time of that letter they were  
9 looking at a deadline of 1981, January 1.

10 Q Have you ever heard of a company called  
11 Supreme Light Manufacturing Company?

12 A No.

13 Q I am taking it from a newspaper publication.  
14 Probably it is a misquote for Supreme Lake. Do you think  
15 that's possible?

16 A I think it's possible.

17 Q I have been introducing exhibits in order, but  
18 since we have covered everything that is in this exhibit,  
19 K, I'm not going to bother again on that.

20 The next one is Exhibit L for identification,  
21 dated April 23rd, 1979, and it's a memo from Paul Marin to  
22 Robert Moore of the D.E.P.

23 (Defendant's Exhibit L for identification  
24 submitted to the witness.)

25 A Yes, I believe I saw that.

1  
2 Q There is a reference again to Supreme Lake  
3 Manufacturing Company and an indication that the Department  
4 was continuing to investigate Supreme Lake as a possible  
5 source of contamination of Well No. 4. Do you know if that  
6 investigation ever took place, and if so, what the results  
7 of it were?

8 A I assume it took place. The investigation  
9 was essentially run by the D.E.P. The status of the  
10 completion of the investigation, I don't know.

11 Q Do you know how you came to see this memo?  
12 A I am sorry. I just looked at the end of it.  
13 It appears to be reflected that it was directed to you. I  
14 was just wondering if you had seen it by having the D.E.P.  
15 submit a copy. Most of the materials in these we have been  
16 over too many times to rehash.

17 I am going to ask you if you can identify  
18 Exhibit M for identification, a letter which appears to have  
19 been signed by you dated April 25, 1979.

20 (Defendant's Exhibit M for identification  
21 submitted to the witness.)

22 A Yes.

23 Q That indicates that public notice of  
24 contamination of Well No. 5 was being given. Can you tell  
25 me why and how that occurred?

1  
2 A Well, as I recall, the levels of the organics  
3 had been low in Well No. 5, but had been there in testing  
4 that had been done on the well, but I believe the State  
5 Health Department took a sample on their annual inspection  
6 of the well in 19 -- yea, okay, and had seen a large increase  
7 in there and this was confirmed by additional tests and then  
8 we made the notification.

9 Q Was the notification a voluntary process on  
10 the part of the Water Department?

11 A The requirements for the organics included a  
12 provision for notification to the public in the event that  
13 higher levels of organics were found.

14 Q What requirements are you referring to?

15 A Well, the State Health Department's regulations.

16 Q Is it true then that you had a choice between  
17 discontinuing use of Well No. 5 or giving public notice of  
18 its contamination?

19 A In the sense that if we turned the well off  
20 we would not have to have made notification, yes, that's  
21 true. The notification is required only for actual sources  
22 of supply. I mean if we were not -- I don't know if this is  
23 your point -- but we were not, for example, making notifica-  
24 tion about Well No. 4 at this point because we were not  
25 using that as a source of supply.

Q Why were you using Well No. 3 and not Well No. 4?

A Well, Well No. 4 had been shut down sometime in 1977, I believe, a year and a half or so before this because of high levels of organics at levels higher than we were finding in 5.

Q Was public notice of contamination of Well No. 6 given?

A I think in the case of Well No. 6, the level increased quite sharply in a short period of time and I think we shut Well 6 off, if I'm not mistaken. I don't think we made notification of Well No. 6 because we took it out as a source of supply.

Q At the point that you gave public notice of contamination of Well No. 5, was it absolutely necessary to use that well?

A Well, at that point we were in a very tight situation as far as water supply was concerned. Our concerns were always about fire protection, having adequate water in the tanks. Now, normally during a good part of the year the demand goes down, and I think we, with Wells 1, 2, 3 and 6 and the reservoirs, we could have met that demand, but as the summer was approaching the water demand increases and unless you can reduce the demand through conservation, you have to



1 have the supplies to meet the demand. Otherwise, your tanks  
2 will go dry, you'd lose fire protection, you'd perhaps  
3 create unsanitary conditions in the sections of the mains  
4 that were dewatered, so it would depend on the demand,  
5 whether it needed to be used or not.  
6

7 Q Was No. 6 being used at this point?

8 A Again, to be certain, I'd have to refer to  
9 the pumping records. I'm not certain on whether it was used  
10 at this time or not.

11 Q The next document marked Exhibit O for  
12 identification is a memo from Robert Norwood of the D.E.P.  
13 to Stanley Pack, Commissioner. It appears to be a description  
14 of a public hearing which you attended. Can you tell me  
15 whether you have seen this report and whether you attended  
16 that meeting?

17 (Defendant's Exhibit O for identification  
18 submitted to the witness.)

19 A Yes, I was at that meeting.

20 Q Have you seen this report before?

21 A I don't know if I have or not.

22 Q Okay. Do you recall whether the list of  
23 the findings contained here accurately represents the findings  
24 of that hearing?

25 A Some of the individual items, I'm not -- I

1 don't recall exactly. I think that the general description  
2 and the conclusion here is accurate of it.

3 that  
4 Q Is it correct that it was concluded / the  
5 natural flow of ground water is toward the Quinnipiac and  
6 results in eventual discharge of contaminants?

7 A (Indicating affirmative response.)

8 Q Is it true that it was concluded that the  
9 proposed discharge would not cause pollution of the waters  
10 of the State?

11 A Yea. Well, I think that's their general  
12 phrase that they use, so that would be a conclusion.

13 Q Is it correct that this constituted a  
14 proposed decision on the application of the Southington  
15 Waterworks to discharge from Well No. 4 to the Quinnipiac?

16 A You mean was that approved?

17 Q Yes.

18 A Yes.

19 Q I would just like to ask you to identify  
20 what appears to be an N.P.D.E.S. permit for the Southington  
21 Waterworks Department. It is marked Exhibit P for  
22 identification. It is dated May 15, 1979.

23 (Defendant's Exhibit P for identification  
24 submitted to the witness.)

25 A Yes. I believe this is the N.P.D.E.S. permit

1 we received.

2 Q This applied again to the pumping of Well No.  
3 4 and the discharging of that water?

4 A Yes.

5 Q Was Well No. 4 actually discharged to waste?

6 A Yes.

7 Q Was that done for -- can you recall the length  
8 of time?

9 A It was done for several months. Exactly,  
10 again, we could get it from the pumping records. I don't  
11 have it.

12 Q I show you what has been marked Exhibit Q  
13 for identification. It is a letter on Amory Engineers'  
14 letterhead dated June 18th, 1979 addressed to you.

15 (Defendant's Exhibit Q for identification  
16 submitted to the witness.)

17 A Yes, I recall that letter.

18 Q Do you recall Amory Engineers' recommendation  
19 that Well No. 4 be pumped to waste approximately 20 hours per  
20 day instead of the previously recommended pumping coincident  
21 with Well No. 6?

22 A Yes.

23 Q Do you recall the reasons for that recommenda-  
24 tion?

1. A It's somewhat vague to me all the reasons  
2. behind that. As I say, I haven't looked at those records  
3. in quite some time. I am not sure that I could reconstruct  
4. all of the reasons for doing that.  
5.

6. Q Well, forget about all. Can you remember  
7. any reason for that?

8. A Can I see that letter again? (Submitted to  
9. the witness.)

10. A I'll try to reconstruct it. I don't know  
11. offhand where those referenced wells are, and not having  
12. the map showing them, it would seem from the letter that  
13. the indication is that the contaminated material was moving  
14. toward Well No. 6 and then in an effort to cut off that  
15. flow, it was suggested that we pump the well more often.

16. Q I am not even going to bother marking it for  
17. identification. I don't know if it will help you or not.  
18. It's the only map I have. The map that I am showing you is  
19. a Water Department, Town of Southington map of Paravella  
20. Farm. It is dated June of 1965. I imagine it is prior to  
21. the date of the last test wells.

22. A As I would say, I don't recall the circum-  
23. stances there, but I remember that it was recommended to  
24. pump the well more often than we had originally planned in  
25. this letter.

1  
2 Q To the best of your recollection, it was  
3 felt because the pollution was moving north towards Wall  
4 No. 6; is that correct?

5 A Yes.

6 Q The next document is marked Exhibit R for  
7 identification. It's dated September 4th, 1979 and titled  
8 Future Water Supply Projections, Southington Waterworks  
9 Department, Southington, Connecticut. I would like to know,  
10 first, whether you recognize that document.

11 (Defendant's Exhibit R for identification  
12 submitted to the witness.)

13 A Yes, I do.

14 Q Do you know who it was prepared by?

15 A Yes. This was done by Robert Taylor of  
16 Amory Engineers and myself. It was in an effort to try to  
17 forecast what our needs were versus our demand and how we  
18 could handle them.

19 Q So that was prepared in the ordinary course  
20 of your business; is that correct?

21 A Yes.

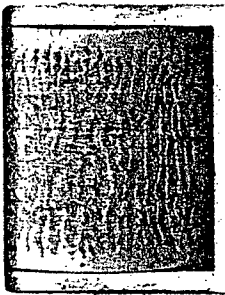
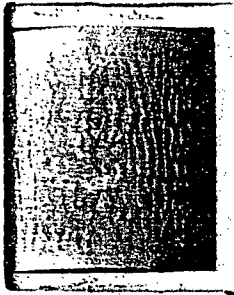
22 Q Did it accurately represent what it purported  
23 to represent at the time?

24 A Yes, I think so.

25 Q That is all I want to know about that.

MISSING page 54 of this deposition

4/15/92



1  
2 concern?

3 A I assume it was, yes.

4 Q In the middle of the second paragraph, you  
5 state "it was not until about two years ago that the  
6 equipment and techniques used to detect the concentrations  
7 in the range of micrograms per liter (parts per billion)  
8 became available." To the best of your knowledge, is that  
9 a correct statement?

10 A Yes, it is.

11 Q Did you take any particular action in response  
12 to the Killing Ground and other publicity?

13 A Well, yes. We had to take additional action,  
14 of course. We had some various board meetings before I  
15 came to work in Southington, and thereafter the matter of  
16 the contamination of our well has been discussed on several  
17 occasions. The members of the press were there and did  
18 report on that, but there was no great concern.

19 When this happened, there was a tremendous  
20 amount of concern because of the T.V. show and we had to do  
21 a lot of talking to people on the phones. We had a lot of  
22 discussions with the newspaper reporters from our local  
23 papers and from several nearby communities, talked to  
24 television reporters, and we also called a public meeting  
25 to discuss what we knew, what was going on at the time.

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Q Did you believe that the concern was justified?

A Well, as I pointed out in the letter, I thought that it was justified. I didn't think that we should just ignore the matter. We should have tracked it down, which we were doing.

Q Was contamination or possible contamination of the Curtis Street well field among the first subjects discussed when you took over as Superintendent of the Water Department?

A Sure. It was one of the first ones discussed, yes.

Q Did you review files located in the Water Department office that were available to you concerning test results from tests that had been done prior to your arrival?

A Yes. I don't recall the exact dates on it, but I did try to get myself updated on all the projects the Department was involved in. This certainly being one of them.

Q Did you review whatever files were available on possible sources of pollution to the Curtis Street well field?

A Well, I think the first thing that I did was look through the available files and read the minutes of the meetings and that sort of thing. As it turned out, there



1 were several areas where this material is filed, and I did  
2 not know where they were -- all were at the beginning, so  
3 I probably did not look at all the material, but I did look  
4 at what testing had been done and discussed with our  
5 engineers the matters of the reports that were presented by  
6 the engineer. We discussed them at our board meetings and  
7 we were aware of what sort of testing was going on there and  
8 what sort of results we were getting. We didn't know how to  
9 evaluate them always. Certainly myself or the board  
10 members were not chemists or epidemiologists or anything of  
11 that nature, but we did review them all.

12 Q Were you aware that there were local citizens  
13 who complained that as far back as the mid-sixties it had  
14 been known that Solvents and perhaps other companies were  
15 engaging in acts which might contaminate the environment?

16 A Yes. There were several local people who  
17 believed that Solvents was and other companies may also have  
18 been.

19 Q Let me make sure that you understood the  
20 question I intended to ask, which is were you aware that  
21 there people who complained it had been known as far back as  
22 the mid-sixties that these things were happening?

23 A I don't know how to answer that question.  
24 If you mean known as a fact that pollution had occurred, if  
25

1 that's what you're saying, no.

2 Q Let's take it slowly. If someone says to me  
3 today, look, back in the mid-sixties my father said Solvents  
4 was doing this, that's not to say Solvents was doing it.  
5 That's saying that someone complained back in the sixties  
6 there were --

7 A Yes, I was aware of that. How far along,  
8 I can't say, but I was aware of that.

9 Q Okay. I would like to explore the question  
10 of during the period of time that you were Superintendent  
11 of Waterworks, how the decision making process operated.  
12 For example, if a decision was made not to use Well No. 5,  
13 just an arbitrary example, was that a decision that would be  
14 made by you or a decision made by the consulting engineer,  
15 or is it a decision that would have been made by the Board  
16 of Water Commissioners?

17 A Well, the Board of Water Commissioners has  
18 the real decision making power as the Water Department was  
19 set up. The engineer and the Superintendent effectively  
20 carries out the programs that the Board of  
21 Water Commissioners decide  
22 to initiate. The Board, I think historically tends to  
23 listen to the Superintendent and to the consultants that the  
24 Board hires and make their decisions accordingly.

25 I don't recall in any of the decisions that I

1 was involved in where, you know, politics or stuff entered  
2 into it. It was pretty much based upon what the recommenda-  
3 tions were presented by the people that the Board, you know,  
4 hired to do the work, but the decision was theirs.

6 Q Did they get involved in the decision, for  
7 example, to pump 4 to waste in order to protect Well No. 6?

8 A Yes. As I recall, we had our engineer, our  
9 engineering consultant come to a meeting of the Board and  
10 discuss what he was proposing and, you know, make recommenda-  
11 tions to the Board at that time.

12 Q So the Board approved that plan?

13 A Yes, as I recall they did.

14 Q Did the Board approve the initial use of  
15 Well No. 6?

16 A Again, I assume so. To be certain, we could  
17 go back to the minutes, but I don't recall how that situation  
18 came into effect. As I say, I think Well No. 6 was  
19 operating on a test basis, you know, prior to my getting  
20 there. I don't really recall what happened specifically,  
21 but it was the kind of thing that the Superintendent would  
22 go to the Board with.

23 Q When the decision was made to pump Well No.  
24 4 to waste to protect No. 6, did you or anyone else, to your  
25 knowledge, consider the effect that pumping Well No. 4

1 might have on any contaminants in the ground water north of  
2 Well No. 6?

3  
4 A Well, I think everybody realized that you're  
5 dealing -- when you're dealing with ground water, you're  
6 dealing with the black box. You don't know what's going on  
7 inside of it. The only way you can tell is by taking your  
8 geological measurements and being -- getting that informa-  
9 tion to be as informative as you possibly can, by taking  
10 samples and by analyzing those samples, trying to put all  
11 this stuff together. I think there was an appreciation --  
12 it appeared as if, given all the data that we had, this  
13 suggested the location of certain sites, but certainly I  
14 don't think anyone was 100 percent sure that this was the  
15 case.

16 Q So did you consider the possibility that  
17 pumping Well No. 4 twenty hours a day or whatever it was  
18 being pumped would have some effect on any contaminants  
19 located north of Well No. 6?

20 A Did we consider that possibility?

21 Q Yes.

22 A Well, again, I think it's -- it's recognized  
23 that, you know, the cone of the area from which the well pulls  
24 its water can extend upward from the well in all directions,  
25 so, you know, it was assumed it could have been pulling some

1 of its water from the north. The analysis of the water  
2 samples from the wells to the north indicated lower  
3 concentrations, so I think, you know, it was a decision that  
4 it was certainly considered, but in analysis of what the  
5 probable situation was and the need for using Well 6 as a  
6 supply source, it was the best decision we could make with  
7 the information we had.  
8

9 MS. PERCELL: Would you mark this for  
10 identification.

11 (Whereupon, the letter referred to above  
12 was marked as Defendant's Exhibit S for identifica-  
13 tion.)

14 Q Let me just ask you if you can identify this  
15 letter addressed to Mr. Bill Norman dated September 26th,  
16 1980.

17 (Defendant's Exhibit S for identification  
18 submitted to the witness.)

19 A Yes. I believe I sent this information in  
20 response to their request.

21 Q Does this list accurately reflect the water  
22 production over the years as represented?

23 A I don't think I -- maybe this was production  
24 from certain wells. This is not system production, and I  
25 don't know exactly what this reflects.

1  
2 Q You say it is not because it is less than  
3 the system production?

4 A Right, yea.

5 Q You have no way of identifying it better  
6 than that? Do you know what MG stands for?

7 A Yea. It stands for million gallons. This  
8 is how many million gallons -- let's see. Okay. I know  
9 what this is. This is total production in the entire  
10 system in million gallons a year. In other words, this  
11 being essentially the demand on our system.

12 MS. PERCELL: I think I am done. I would  
13 like to take just a few seconds to review my notes.

14 (Pause.)

15 Q Was the problem in Well No. 4 a heavy metal  
16 contamination, a organochalides contamination or both, or  
17 other kinds of organics?

18 A I don't think it was a heavy metal contamina-  
19 tion problem in Well 4. I think what happened was -- again,  
20 this was before I was there, so I don't know from actual  
21 experience. I believe what happened was on test pumping  
22 Well 6 at the higher rate they found heavy metals and they  
23 wanted to check Well 4 for heavy metals, too, and in doing  
24 the tests for Well No. 6, they ran the organics in addition  
25 to the heavy metals and the organics were low, but the heavy

metals were higher at that pumping rate, so they wanted to see if the heavy metals was a problem in Well 4, too, and they found organics present at higher levels in Well 4. I believe that's the way it went. I don't believe Well No. 4 had a problem with the metals.

Q So when it was shut down, it was shut down because of organics?

A Yes.

Q What about Well 6? When it was not used or when expressions of reluctance were made, was that because of heavy metals or organics?

A No, no. The heavy metals problem had been essentially resolved by reducing the pumping rate.

Q Who was it that made the decision as to what tests would be performed and how often they would be performed, especially during the period in which Well 6 was developed?

A Well, again, I can't answer that from actual experience. I wasn't working there when Well 6 was developed, but based upon our subsequent testing which I was involved with amongst essentially the same parties, there were certain tests that were required by the State Health Department to be done, tests that had to be performed for any municipal type of water supply system. As far as

1 additional testing and frequency of testing, in many cases  
2 these were determined by the Water Department and our  
3 consultants and reviewed by the State Health Department.  
4 In some cases they were through negotiations with the Health  
5 Department or the D.E.P., so I can't say that there has  
6 always been one way of determining that.  
7

8 Q If they were originated by the Water Depart-  
9 ment rather than the Department of Health, would they have  
10 been suggested by Walter Amory's firm or by you, or  
11 possibly the Superintendent before you?

12 A In most cases by Amory Engineers.

13 Q In most cases, would you follow his advice?

14 A Yes.

15 Q Do you remember any occasions on which you  
16 did not or you had discussions with him and he changed his  
17 mind?

18 A Well, I think at several of these negotiations,  
19 you know, sometimes -- it wasn't as if Walter Amory would be  
20 up in his office and he would decide what was going to be  
21 done. I think in many cases the decisions were made during  
22 discussions that occurred in the Water Department offices  
23 or in the field, and more or less were joint decisions, and  
24 other cases a plan was devised by Amory or by himself and  
25 submitted to us.



Q When you said that sometimes what tests would be performed were negotiated with the State, can you explain better what you mean by that?

A I guess that was a poor choice of words, actually. Generally in some cases we'd be in the field and we'd be discussing something and people would suggest a sampling procedure or sampling plan and a frequency and somebody else might suggest that, you know, this would be difficult to do. For example -- I don't know that this ever occurred -- but let's say we wanted to take a sample every so many gallons. Well, that might occur when nobody is there. Instead of doing that, we might agree to take a sample once a week or something like that, which would essentially mean the same thing, plus or minus a few gallons. That's the sort of thing.

Q Were there ever times when you felt or your consultants felt that a course of testing would be too expensive despite its being preferred by whatever State Department you were working with?

A Well, the tests themselves were very expensive. I think they were talking in the range of \$100 a test, but this was always presented as a cost to the Board before they approved the plan. You'd have a sampling and analysis of the costs associated with this, and I think

1 the State in the very beginning was very helpful in that they  
2 did a lot of the sampling in their own labs at no charge to  
3 us. It was a concern, but I think the Board realized that  
4 they had to get the answers. They just couldn't afford not  
5 to.  
6

7 Q You said a little earlier, I believe, that  
8 the heavy metals problem seen in Well No. 6 was essentially  
9 solved by using the lower pumping rates; is that correct?

10 A I believe it is, yes.

11 Q Can you explain to me why that would be true?

12 A Well, again, I'm not a ground water  
13 hydrologist or anything like that. I don't have expertise  
14 in that area, but from what I have already gotten in the  
15 courses and the situation here is that to simplify the  
16 pumping situation, if you can imagine a circle around the  
17 well with the well as the center, the well -- the circle  
18 represents the area from which the well draws water. If you  
19 pump at 1400 gallons a minute, the reach of that well or of  
20 that circle, the radius of the circle is going to be higher  
21 than if you pump at a lower rate, so that may be one reason  
22 for it occurring.

23 Another possibility is that the area where  
24 the problem is may need a higher driving force to get it in  
25 the drop of water. In a particular area, that may be the

1 driving force. I don't know. I suggest --

2 Q I don't understand that. Can you explain  
3 that to me?

4 A Well, I don't know that I can. I think the  
5 main thing probably would be the radius of the influence of  
6 the well. As I say, that's simplifying it because the  
7 radius is not a circle of the area. It is not a circle, the  
8 radius, that the well draws from.

9 Q If I am understanding you correctly, the only  
10 way that a contaminant measured in parts per billion or in  
11 a percentage of the total could increase based on a greater  
12 pumping radius would be if the source of contamination or  
13 a larger source of contamination was outside of what you've  
14 described as the smaller radius indicated by lower pumping  
15 rate? Did you understand that, what I just said?

16 A (Indicating negative response.)

17 Q If a contaminant is expressed in parts per  
18 billion, if it were consistent over the area, isn't it true  
19 that the parts per billion ought to remain the same no  
20 matter how much water you got, no matter how much the size  
21 of your total amount would be?

22 MR. KELLEY: I don't think we've established  
23 he has expertise to testify to that.

24 MS. PERCELL: I am trying to understand an  
25

earlier answer. That is all I am trying to do.

MR. KELLEY: You're asking questions that you should be asking a hydrologist.

Q If you know. Mr. Kelley is right. If you don't know, you don't know.

A I wouldn't feel comfortable really trying to give a scientific explanation of it. There are certainly witnesses who you could call who would be much better to do that, other than I.

Q But what you do know is that there was a heavy metals problem that appeared to be solved upon using a lower pumping rate in Well No. 6?

A Yes.

EXAMINATION BY

MR. BLUMSTEIN:

Q I'm Joel Blumstein with the E.P.A., the Plaintiffs in the case. I just want to ask a couple of questions filling in the gaps just in my mind.

We were earlier discussing Exhibit G, a memo from Paul Marin to Bob Taylor of the E.P.A., dated October 19, 1978. You talked about the need for additional testing north of Well No. 6.

While you with the Water Department, do you know if any additional testing was done north of No. 6, I

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guess, after October 1978?

A        October '78, there was additional testing that was recommended by our consulting engineers. I'm not sure of the exact dates, whether it was before October '78 or after. I believe it was at approximately that time, which involved sampling of various wells out there and construction of a well in the very northwestern section of the well field. We could never really get a well that big to hold tight for sampling purposes, so we were going to construct a gravel -- essentially we would dig it out. Instead of banging down a well casing, we were going to dig it out and put a fairly large casing in there, so we could take samples from it, which was done. Again, I'm not sure of the date. I'm not sure if it was before or after. There was additional sampling done.

Then, of course, the additional testing was done by the engineers later on.

Q        Okay. The sampling you just talked about, do you know what the results of that were? Not the E.P.A. testing.

A        Offhand, I do not recall the details of the results of that sampling analysis, but it should be available as a report from Amory Engineers to the Board of Water Commissioners.

Q Do you remember the approximate date?

A Maybe the spring of '79.

Q Okay. In regards to the pumping of No. 4 to waste, was that actually done?

A Yes, it was.

Q Do you know for about how long Well No. 4 was pumped to waste?

A A matter of several months was the period of the pumping. To get the exact pumping rates and all, we could check our pumping records of the Water Company.

Q Okay. What were the results of this -- let me call it -- experiment?

A It didn't work.

Q It didn't work?

A No. The levels in Well 6 did rise.

Q Do you have any possible explanation for why they rose?

MS. PERCELL: If you know.

A Well, I think that was the purpose of the additional testing that was done by the E.P.A. Our supposition was we were pulling water from the north, from Solvents Recovery, and this pollutant was migrating down in this direction. That's what our supposition was. But as I say, the testing that the E.P.A. did was, I think, designed

1  
2 to do that, also.

3 Q Okay. And then finally, toward the end of  
4 your testimony, if I remember correctly, I guess we were  
5 talking about the fallout from the Killing Ground and the  
6 increased public reaction to it, you said you felt there  
7 was a need to track down the sources of contamination. What  
8 did you do in that regard?

9 A Well, I didn't mean to say that there was a  
10 need to institute anything that we hadn't done or known we  
11 had to do at the time. I think our concern was there from  
12 the beginning, and, you know, the question was asked of me  
13 was there a concern, and there was a concern. It wasn't  
14 necessarily generated by the Killing Ground. It was a  
15 concern that was there from the time that the analysis showed  
16 things were in the water. It also pointed out, I think, as  
17 time went on, the regulations, the SNARLES,  
18 the various information that came out with time, everybody  
19 started to get a little better handle on things, but there  
20 was a concern from the time, even though we didn't know too  
21 much about that, back in '77 when I came.

22 Q What kind of effort did the Water Department  
23 make to track down the source of contamination?

24 A Well, the Water Department did not really  
25 have the expertise to investigate the sources of pollution,

1 and probably not the authority, either. We worked closely  
2 with the D.E.P., with the Health Department, as those agencies  
3 whose State guaranteed who could conduct those investigations  
4 and attempted to collect as much information as we could on  
5 the effects of the well field by the drilling of test wells  
6 and by pumping those wells, by sampling, doing as much as we  
7 could that way.  
8

9 Thirdly, a real strong initiative was put on  
10 the development of new sources, so that the Water Department  
11 probably spent a good deal of money over and above what they  
12 would have spent normally in the normal course of affairs in  
13 developing new well supplies because it didn't have that two  
14 year period that we normally have. It had slung down to much  
15 lower than that. So we did have to go into that extra expense  
16 of decreasing that time involvement.

17 Q So there wasn't an independent investigation  
18 of the source of the contamination of Well No. 67

19 A No. We tried to refer everything we knew to  
20 the State.

21 MR. BLUMSTEIN: Okay. That's it for me.

22 MS. PERCELL: I am going to have to ask the  
23 reporter to identify one last document.

24 (Whereupon, the letter referred to above was  
25 marked as Defendant's Exhibit T for identification.)



1  
2 FURTHER EXAMINATION BY

3 MS. PERCELL:

4 Q The document that has just been marked  
5 Exhibit T for identification is a letter from Paul Marin  
6 addressed to John Bean and dated July 1st, 1977. The reason  
7 I would like you to look at this is because in response to a  
8 previous question you were discussing attempting to sink  
9 wells at the northern edge of the well field and there is a  
10 reference to that in this letter. Have you ever seen that  
11 letter before?

12 (Defendant's Exhibit T submitted to the  
13 witness.)

14 A I'm not familiar with it. I don't recall it,  
15 but I know there was some difficulty in getting good wells  
16 out there in that area. I would think that this was probably  
17 the same thing.

18 Q You don't happen to be able to identify --  
19 well, first, to know whether those monitor wells were actually  
20 installed, and secondly to tell me how to identify those  
21 wells?

22 A (Indicating negative response.)

23 MS. PERCELL: Okay. I have no further ques-  
24 tions.

25  
Daniel C. Christy

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Subscribed and sworn to before me

this \_\_\_\_\_ day of \_\_\_\_\_, 1981.

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Notary Public

## C E R T I F I C A T I O N

I, Joseph R. DeCelestino, a stenotype reporter and Notary Public within and for the State of New York, do hereby certify:

That DANIEL C. CHRISTY, the witness whose examination is hereinbefore set forth, was duly sworn by me, and that the transcript of said examination is a true record of the testimony given by the witness.

I further certify that I am not related to any of the parties to this action by blood or marriage and that I am in no way interested in the outcome of this matter.

  
Joseph R. DeCelestino

Dated: 11/23/81

**Defendant's  
Exhibit****E X H I B I T S****Page**

A	Letter from Samuel Bowers, September 28, 1965	17
B	Memo from Lawrence Shulman, October 1, 1965	17
C	Memo from Edward Dacca, August 3, 1970	17
D	Letter from Walter Amory Engineering Consultant, August 8, 1978	17
E	Letter from Walter Amory Engineering Consultant, August 10, 1978	17
F	Memo from Paul Marin re: Notes of meeting of August 10, 1978	17
G	Memo from Paul Marin, October 19, 1978	17
H	N.P.D.E.S. Application for permit to discharge	17
I	Memo from Robert Taylor, January 11, 1979	17
J	Letter from Amory Consultant Engineers, February 27, 1979	17
K	Document	17
L	Memo from Paul Marin, April 23, 1979	17
M	Letter from Daniel Christy, April 25, 1979	17
N	Letter from Daniel Christy, April 25, 1979	17
O	Memo from Robert Norwood to Stanley Pack	17
P	N.P.D.E.S. permit, May 15, 1979	17

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3 Defendant's  
4 Exhibit

## E X H I B I T S (Cont'd)

Page

5 Q Letter from Amory Consultant  
6 Engineers, June 13, 1979 17  
7 R Future Water Supply Projections 17  
8 S Letter from Daniel Christy,  
9 September 26, 1980 61  
10 T Letter from Paul Marin, July 1, 1977 72  
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